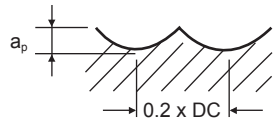
CUTTING DATA

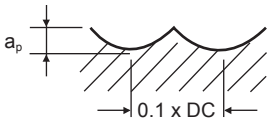
118370, 112370 (2 Flute Ball Nose)

VDI MATERIAL GROUP		MATERIAL	HRc	NORMAL SPEED	Size (mm)								
					1.0	**1.2**	**1.5**	**2.0**	**3.0**	**4.0**	**5.0**	**6.0**	**7.0**
P	1-5	Non-alloy Steel	**<25**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	55	70	85	100	140	150	160	180	190
				n	17500	18570	18030	15910	14850	11930	10180	9550	8650
				f_z	0.008	0.009	0.011	0.026	0.026	0.035	0.045	0.06	0.075
				f (mm/min)	280	330	395	830	770	835	915	1145	1295
	6-9	Low alloy Steel	**25-35**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	45	55	65	75	105	120	130	145	150
				n	14330	14590	13790	11930	11140	9550	8270	7690	6820
				f_z	0.008	0.009	0.011	0.023	0.023	0.032	0.04	0.06	0.07
				f (mm/min)	230	260	300	550	510	610	660	920	955
	10-11	High alloy Steel, Tool Steel	**35-45**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	45	55	65	75	105	120	130	145	150
				n	14320	14590	13790	11930	11140	9550	8270	7690	6820
				f_z	0.008	0.009	0.011	0.023	0.023	0.032	0.04	0.06	0.07
				f (mm/min)	230	260	300	550	510	610	660	920	955
K	15-20	Cast Iron		a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	55	70	85	100	140	150	160	180	190
				n	17500	18570	18030	15910	14850	11930	10180	9550	8650
				f_z	0.008	0.009	0.011	0.026	0.026	0.035	0.045	0.06	0.075
				f (mm/min)	280	330	395	830	770	835	915	1145	1295
H	38	Hardened Steel	**45-55**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	20	25	30	35	50	60	65	65	65
				n	6360	6630	6360	5570	5300	4770	4140	3450	2950
				f_z	0.008	0.009	0.011	0.016	0.017	0.021	0.024	0.03	0.035
				f (mm/min)	100	120	140	175	180	200	200	205	205

MATERIAL GROUP
P, K



MATERIAL GROUP
H



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For long series and long necked tools it may be necessary to reduce feed rate by up to 50%.

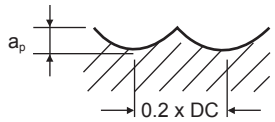
v_c - cutting speed (m/min)
n - RPM (rev/min)
f_z - feed per tooth (mm)
f - feed rate (mm/min)
a_p - axial depth of cut
a_e - radial depth of cut

CUTTING DATA

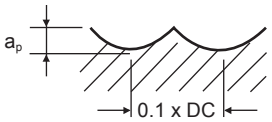
118370, 112370 (2 Flute Ball Nose)

VDI MATERIAL GROUP		MATERIAL	HRc	NORMAL SPEED	Size (mm)								
					8.0	**9.0**	**10.0**	**12.0**	**14.0**	**16.0**	**18.0**	**20.0**	**25.0**
P	1-5	Non-alloy Steel	**<25**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	200	215	225	245	255	270	280	290	300
				n	7960	7600	7160	6500	5800	5370	4950	4610	3820
				f_z	0.09	0.1	0.12	0.15	0.16	0.18	0.19	0.2	0.25
				f (mm/min)	1430	1520	1720	1950	1855	1935	1180	1845	1910
	6-9	Low alloy Steel	**25-35**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	160	170	180	195	200	215	220	230	235
				n	6360	6010	5730	5170	4550	4280	3890	3660	2990
				f_z	0.08	0.09	0.1	0.12	0.13	0.14	0.15	0.16	0.17
				f (mm/min)	1020	1080	1145	1240	1180	1200	1165	1170	1020
	10-11	High alloy Steel, Tool Steel	**35-45**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	160	170	180	195	200	215	220	230	235
				n	6360	6010	5730	5170	4550	4280	3890	3660	2990
				f_z	0.08	0.09	0.1	0.12	0.13	0.14	0.15	0.16	0.17
				f (mm/min)	1020	1080	1145	1240	1180	1200	1165	1170	1020
K	15-20	Cast Iron		a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	200	215	225	245	255	270	280	290	300
				n	7960	7600	7160	6500	5800	5370	4950	4610	3820
				f_z	0.09	0.1	0.12	0.15	0.16	0.18	0.19	0.2	0.25
				f (mm/min)	1430	1520	1720	1950	1855	1935	1180	1845	1910
H	38	Hardened Steel	**45-55**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	70	70	70	75	75	75	75	80	80
				n	2780	2470	2230	1990	1700	1490	1330	1270	1020
				f_z	0.044	0.05	0.055	0.07	0.08	0.091	0.1	0.113	0.12
				f (mm/min)	245	245	245	280	275	270	265	290	245

MATERIAL GROUP
P, K



MATERIAL GROUP
H



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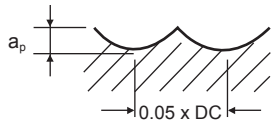
v_c - cutting speed (m/min)
n - RPM (rev/min)
f_z - feed per tooth (mm)
f - feed rate (mm/min)
a_p - axial depth of cut
a_e - radial depth of cut

CUTTING DATA

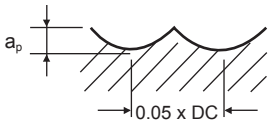
118370, 112370 (2 Flute Ball Nose)

VDI MATERIAL GROUP		MATERIAL	HRc	HIGH SPEED	Size (mm)								
					1.0	**1.2**	**1.5**	**2.0**	**3.0**	**4.0**	**5.0**	**6.0**	**7.0**
P	1-5	Non-alloy Steel	**<25**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	90	105	120	150	220	295	370	445	455
				n	28650	27860	25460	23870	23340	23470	23550	23610	20700
				f_z	0.026	0.027	0.03	0.035	0.048	0.07	0.086	0.092	0.11
				f (mm/min)	1490	1505	1530	1670	2240	3285	4050	4485	4554
	6-9	Low alloy Steel	**25-35**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	90	105	120	150	220	295	370	445	455
				n	28650	27860	25460	23870	23340	23470	23550	23610	20700
				f_z	0.026	0.027	0.03	0.035	0.048	0.07	0.086	0.092	0.11
				f (mm/min)	1490	1505	1530	1670	2240	3285	4050	4485	4554
	10-11	High alloy Steel, Tool Steel	**35-45**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	90	105	120	150	220	295	370	445	455
				n	28650	27860	25460	23870	23340	23470	23550	23610	20700
				f_z	0.026	0.027	0.03	0.035	0.048	0.07	0.086	0.092	0.11
				f (mm/min)	1490	1505	1530	1670	2240	3285	4050	4485	4554
K	15-20	Cast Iron		a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	90	105	120	150	220	295	370	445	455
				n	28650	27860	25460	23870	23340	23470	23550	23610	20700
				f_z	0.026	0.027	0.03	0.035	0.048	0.07	0.086	0.092	0.11
				f (mm/min)	1490	1505	1530	1670	2240	3285	4050	4485	4554
H	38	Hardened Steel	**45-55**	a_p (mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
				v_c (m/min)	90	105	120	150	180	190	210	220	225
				n	28650	27860	25460	23870	19100	15120	13370	11670	10230
				f_z	0.016	0.017	0.019	0.022	0.031	0.042	0.05	0.06	0.068
				f (mm/min)	920	950	970	1050	1180	1270	1335	1400	1400

MATERIAL GROUP
P, K



MATERIAL GROUP
H



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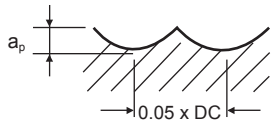
CUTTING DATA

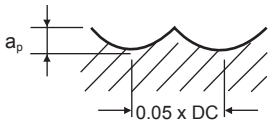
118370, 112370 (2 Flute Ball Nose)

VDI MATERIAL GROUP		MATERIAL	HRc	HIGH SPEED	Size (mm)								
					8.0	**9.0**	**10.0**	**12.0**	**14.0**	**16.0**	**18.0**	**20.0**	**25.0**
P	1-5	Non-alloy Steel	**<25**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	470	485	495	515	530	540	550	560	570
				n	18700	17160	15750	13660	12050	10740	9730	8910	7260
				f_z	0.12	0.128	0.139	0.16	0.17	0.181	0.19	0.2	0.22
				f (mm/min)	4490	4390	4380	4370	4100	3890	3700	3565	3195
	6-9	Low alloy Steel	**25-35**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	470	485	495	515	530	540	550	560	570
				n	18700	17160	15750	13660	12050	10740	9730	8910	7260
				f_z	0.12	0.128	0.139	0.16	0.17	0.181	0.19	0.2	0.22
				f (mm/min)	4490	4390	4380	4370	4100	3890	3700	3565	3195
	10-11	High alloy Steel, Tool Steel	**35-45**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	470	485	495	515	530	540	550	560	570
				n	18700	17160	15750	13660	12050	10740	9730	8910	7260
				f_z	0.12	0.128	0.139	0.16	0.17	0.181	0.19	0.2	0.22
				f (mm/min)	4490	4390	4380	4370	4100	3890	3700	3565	3195
K	15-20	Cast Iron		a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	470	485	495	515	530	540	550	560	570
				n	18700	17160	15750	13660	12050	10740	9730	8910	7260
				f_z	0.12	0.128	0.139	0.16	0.17	0.181	0.19	0.2	0.22
				f (mm/min)	4490	4390	4380	4370	4100	3890	3700	3565	3195
H	38	Hardened Steel	**45-55**	a_p (mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
				v_c (m/min)	235	240	245	255	265	270	275	280	285
				n	9350	8490	7800	6760	6020	5370	4860	4455	3630
				f_z	0.075	0.08	0.086	0.095	0.1	0.105	0.11	0.115	0.12
				f (mm/min)	1405	1360	1340	1285	1200	1130	1070	1025	870

MATERIAL GROUP
P, K



MATERIAL GROUP
H



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